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ABSTRACT

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Geography

Impacts of Urban Land Use Change on Sources of Drinking Water in Kumasi, Ghana

Committee Chair: Dr. David Shively

Land use has a major influence on water quality, and in developing world urban areas where there are competing land uses the issue is of great concern. Kumasi, Ghana like most cities in the developing world, struggles to control and prevent urban water supply pollution through appropriate land use management. Presently all rivers in the city, including the one where water is obtained for treatment and supply of potable water, are highly polluted. This study investigates how sources of drinking water are impacted by land use activities in Kumasi, the implications associated with the impacts, and community perceptions of urban land uses impacts on sources of drinking water. It relies on field data collected through semi-structured interviews, a transect walk conducted upstream from the source of public water supply, and a transect walk bisecting the river in each of two communities characterized by differing levels of economic affluence. The study also draws on other secondary data sources. Using these methods, the study finds that urban land use is increasing the nutrient content of the source of public water supply, threatening water quality, reducing a water reservoir's storage capacity, increasing the cost of water treatment, and contributing to water supply restrictions. The effect is water scarcity at the household level, especially in the poor urban community. To ensure sustainable water supply, there is the need to address land use challenges and the threats they pose for sources of public water supply, and this calls for collaboration among all departments, institutions, agencies, and interest groups involved in land use and water resource protection issues.